CLAIMS:

1. A method of manufacturing a field emission device, comprising the steps of:
- distributing particles (110) on a transparent substrate (125), at least a part of said particles (110) being arranged for emitting electrons;
- depositing a photo layer (150);
- illuminating the field emission device from the substrate side, the particles (110) shading regions (155) of the photo layer (150);
- etching the shaded photo layer and
- forming, near said particles, a gate electrode (140) being provided with a pattern of apertures (135) for passing electrons.

2. The method of Claim 1, characterized in that the method further comprises providing a conductive layer, the photo layer (150) comprising a positive photo resist and being deposited on top of said conductive layer, and the etching step comprises further steps of
- removing the shaded regions (155) of said photo layer (150) and
- forming the pattern of apertures (135) in the conductive layer adjacent to the removed shaded regions (155), for forming the gate electrode (140).

3. The method of Claim 2, characterized in that the method further comprises heating the conductive layer during a preselected time.

4. The method of Claim 1, characterized in that the method further comprises providing an insulating layer (330) at least partially covering the particles (310), whereby the photo layer (352) comprises a negative photo resist and is deposited on top of said insulating layer (330), and the etching step comprises further steps of
- removing parts (356) of said negative photo layer (352) outside the shaded regions (355) exposing parts of said insulating layer (330), and
- depositing electrode material on said exposed parts of said insulating layer (330), for forming the gate electrode (340).

5. A field emission device, comprising:

– a distribution of particles (110) on a substrate (125), at least a part of said particles (110) being arranged for emitting electrons;

– a gate electrode (140) near said particles (110), said gate electrode (140) being provided with a pattern of apertures (135) for passing emitted electrons,

characterized in that the pattern of the apertures (135) is similar to the distribution of the particles (110).

6. The field emission device of Claim 5, characterized in that an insulating layer (130) is provided between the substrate and the gate electrode (140), said insulating layer (130) at least partially covering the particles (110).

7. The field emission device of Claim 6, characterized in that the insulating layer (130) is recessed substantially at the location of the particles (110).

8. The field emission device of Claim 5, characterized in that the substrate (120) is transparent and comprises a transparent cathode electrode (120).

9. The field emission device of Claim 7, characterized in that the cathode electrode (120) comprises indium tin oxide.

10. The field emission device of Claim 5, characterized in that the particles (110) comprise a graphite-based field emitter.

11. The field emission device of Claim 5, characterized in that the particles comprise carbon nanotube (415).

12. The field emission device of Claim 11, characterized in that the particles further comprise precursor particles (410), from which said carbon nanotube (415) are catalytically grown.

13. A display device, comprising a field emission device according to any of the Claims 5-12.